AMENDMENTS TO THE DRAWINGS:

The Applicants respectfully request that drawing sheets 1 and 2 submitted with the original application be replaced with the attached replacement sheets 1 and 2. The drawings are being amended to replace hand drawn line drawings with formal figures. No new matter is added by way of these amendments.

REMARKS

Claims 1-29 are currently pending in this application. Claims 1-29 were rejected. Claims 1, 5, 15, 19 and 29 have been amended. New claims 30-32 have been added.

Amended claims 1, 5, 15, 19 and 29 are fully supported by the Specification. Independent claims 1, 15 and 29 have been amended to variably recite:

> creating ~~a link aggregation comprising~~ a plurality of tunnels across the public computer network ~~to connect a first computer to a second computer~~, the plurality of tunnels including a tunnel for each link in [[the]]a link aggregation, said link aggregation capable of simultaneously supporting a plurality of transmission protocols;
>
> connecting a first computer at a first private network ~~site~~ with a second computer at a second private network~~site~~, the connection made via the tunnels created across the public computer network; and
>
> transmitting packets end-to-end from the first computer to the second computer in a manner characterized that data is transmitted from the first computer to the second computer without terminating [[a]]the connection from the first computer to the second computer at a switch at an inbound edge of the public computer network, the packets conforming to protocols in the plurality of transmission protocols.

These amendments are supported throughout the Specification, for example, at paragraphs [0001], [0002], [0011], and [0016]. Claims 5 and 19 have been amended to replace Etherchannel with "link aggregration". As would be known to those with skill in the art, Etherchannel is a Cisco proprietary version of link aggregation, and, as made clear throughout the Specification, the claimed invention relates in general to link aggregation. This amendment is supported, for example, at paragraphs [0015] and [0020]. All of the amendments are made for purposes of expediting prosecution, and are made without prejudice to the Applicants' right to assert the claims in this or related applications in the future.

Furthermore, new claims 30-32 are supported throughout the Specification, for example, at paragraphs [0007] through [0007] and [0015] through [0020]. Neither the new or amended claims present any new matter.

The positions set forth in the Office Action have been carefully considered. The rejections are respectfully traversed.

REJECTIONS UNDER 35 U.S.C. § 103(a)

Claims 1, 6-8, 12-15, 20-22 and 26-29 (including all independent claims) were rejected under 35 U.S.C. § 103 as being allegedly unpatentable over Alexander Jr. et al., U.S. Patent No. 6,501,749 ("Alexander") in view of Guruprasad, U.S. Patent No. 7,002,927 ("Guruprasad"). Claims 2 and 16 were rejected under 35 U.S.C. § 103 as being allegedly unpatentable over

Alexander in view of Guruprasad and further in view of Perloff et al., U.S. Patent No. 6,910,149 ("Perloff"). Claims 3, 4, 17 and 18 were rejected under 35 U.S.C. § 103 as being allegedly unpatentable over Alexander in view of Guruprasad and further in view of Portolani et al., U.S. Patent No. 2006/0067317 ("Portolani"). Claims 5 and 19 were rejected under 35 U.S.C. § 103 as being allegedly unpatentable over Alexander in view of Guruprasad and U.S. Patent Publication No. 2006/0067317 ("Engstrand"). Claims 9-11 and 23-25 were rejected under 35 U.S.C. § 103 as being allegedly unpatentable over Alexander in view of Guruprasad and further in view of U.S. Patent No. 5,081,621 ("Sugimoto"). Applicants respectfully traverse these rejections.

Various embodiments of the present application, as recited in independent claims 1, 15, 29, provide a link aggregation connecting a first computer at a first private network to a second computer at a second private network across a public computer network. Independent claims 1, 15 and 29 variably recite "creating a plurality of tunnels across the public computer network, the plurality of tunnels including a tunnel for each link in a link aggregation." The claims also variably recite "connecting a first computer at a first private network with a second computer at a second private network, the connection made via the tunnels created across the public computer network."

Alexander and Guruprasad do not teach these claim elements, either alone or in combination. Alexander describes a system for distributing data traffic *within* a host or switch where each of the egress ports of a link aggregation group determines whether it should retransmit a multicast frame sent to it by the ingress port performing the multicast transmission. (*See* Alexander, Abstract.) That is, the focus of Alexander is on transmission between the ingress and egress ports of a *single* device. It concerns intra- not inter- switch activities, and addresses multicast transmission of data frames from an ingress port to a plurality of egress ports of the same device. Alexander makes no mention of a public computer network or a first and second private network. Nor does it make any mention of a connection between a first computer at a first private network and a second computer at a second private network across a public computer network. Nor does Alexander mention tunneling in any way. Alexander's entire discussion of link aggregation concerns the problems associated with multicasting traffic within a host or switch. Alexander does not teach "creating a plurality of tunnels across the public computer network, the plurality of tunnels including a tunnel for each link in a link aggregation." Nor does Alexander teach "connecting a first computer at a first private network with a second computer at a second private network, the connection made via the tunnels created across the public computer network." Alexander could not teach these elements since it is only concerned with what occurs within a switch, rather than what occurs between switches, much less between public and private networks.

The Examiner relies on elements 22 and 24 of Alexander, Figure 1, as allegedly teaching a computer network, and cites Column 2, line 36 and Column 4, line 67, as teaching the "public" aspect of public computer network. Figure 1, elements 22 and 24 depict two hosts. Even assuming these elements could be said to correlate to a "computer network", they in no way teach or suggest a "public computer network", as the Examiner herself appears to admit. Similarly, the section of Alexander's text cited by the Examiner discusses use of an IP address to determine the physical link of a link aggregation on which link a frame should be transmitted. However, this description of use of IP addresses to determine on which to transmit a frame is plainly insufficient to teach a public computer network or first and second private networks, much less "connecting a first computer at a first private network with a second computer at a second private network, the connection made via the tunnels created across the public computer network."

Accordingly, Alexander does not teach connections between first and second private networks across a public computer network. Based on at least the above, the Applicants respectfully request that the Examiner withdraw her rejections of independent claims 1, 15 and 29, and the claims that depend from them.

Furthermore, the Examiner admits that Alexander does not teach a plurality of tunnels (Office Action, page 3), and relies on Guruprasad for allegedly teaching tunneling of links. However, Guruprasad does not teach or suggest tunneling, much less tunneling of a link aggregation in any way. Guruprasad describes mechanisms for improving a "label switched (virtual path) network" where, instead of using IP addresses, "connections are provided in the form of virtual circuits or paths." (Col. 1, Ln. 9 and 13.) Guruprasad seeks to address the problem of the "build up of 'connection state' information, including path table entries, within the switches" of such a network (Col. 1, Lines 12-15) It seeks to do this by reducing the number of necessary path table entries. The Abstract states: "a method is provided for automatic aggregation of a plurality of virtual paths emanating from a first switch. The method includes automatically discovering and identifying portions of the virtual paths that run parallel to one another, e.g., through the same set of switches up to a common terminating switch at which the paths diverge or terminate, as a candidate path set for aggregation, *constructing a tunnel path along this set of paths* all the way between the first switch and the terminating switch, and *aggregating the parallel portions identified by the path set into the tunnel.*" (Guruprasad, Abstract (emphasis added).)

As is clear from this description, Guruprasad concerns a very different network from the one recited in various embodiments of the present application and from the one presented in Alexander.

While Guruprasad uses the terms "aggregating" and "tunnel", the terms reflect very different concepts from the "link aggregation" and "tunnel" recited in the claims. Guruprasad states with respect to tunneling:

> Constructing the tunnel path comprises the steps of allocating a new path table entry for the tunnel at the terminating switch, composing at the terminating switch a response signal message, called aggregation signal, bearing the final forward hop count and the list of path indices received in the aggregation signal, a list of outgoing path indices corresponding to the received list, and a reverse hop count initialized to zero, and propagating the aggregation signal in reverse through each of the preceding switches in succession until it reaches the first switch. The method further comprises incrementing the reverse hop count at each of the successive switches on this reverse traversal to determine arrival at the first switch by comparing the reverse hop count with the final forward hop count, performing at each switch a reverse lookup of the first list of indices received in the aggregation signal to identify the corresponding incoming virtual paths at that switch and replacing the received first list of indices with the identified corresponding list, allocating at each switch a new path table entry for the tunnel, assigning the received extra index as the outgoing index and the next switch from which the aggregation signal was received as the next switch for this new entry, replacing the received extra index with the index of this new entry, and finally, initiating aggregation of the candidate set of paths into the constructed tunnel upon arrival at the first switch. (Col. 3, Ln. 59 to Col. 4, Ln. 16.)

Based on this description of "tunnel path", there is no indication that Guruprasad uses tunnels as a mechanism for providing safe passage across an incompatible or untrustworthy network, the sense in which tunneling is generally used in networking, and in which it is used in various embodiments of the present application. For example, various embodiments of the present application use Layer 2 Protocol Tunneling (L2PT) for forming tunnels which carry packets across an Internet Service Provider (ISP) network. The Specification states: "L2PT allows switches on the inbound side of the ISP infrastructure to encapsulate protocol packets with a special MAC address and send them across the ISP infrastructure. Edge switches on the outbound side of the ISP infrastructure decapsulate the protocol packets and send them to a customer network." (*See* Specif., paragraph [0007].) However, Guruprasad does not teach connections involving separate public or private networks, as recited in the claims, and contains no suggestion of packets needing to cross a public computer network. Accordingly, Guruprasad cannot teach "connecting a first computer at a first private network with a second computer at a second private network, the connection made via the *tunnels created across the public computer network*." (Emphasis added)

Further, Guruprasad does not teach a "link aggregation". As would be known to those with skill in the art, link aggregation involves combining a plurality of physical links into one

logical link. Neighboring network devices in a network are typically interconnected through multiple physical links. For example, in an Ethernet network, multiple links may exist between two network devices. Each of the links connects a physical port from one device to a physical port of the other device. In many instances, it may be beneficial to aggregate some of the physical links into logical links. This concept of link aggregation appears in various embodiments. Nothing in Guruprasad remotely suggests that the aggregation it describes has any of the features of such a link aggregation. (See Guruprasad, Col. 4, Lns. 17-34.)

Furthermore, Alexander and Guruprasad do not teach the elements of new dependent claims 30 and 31, either alone or in combination. Dependent claims 30 and 31 recite "wherein said plurality of tunnels is formed in part by adding an outer VLAN tag to each packet at the inbound edge of the public computer network and removing the outer VLAN tag at an outbound edge of the public computer network, the outer VLAN tag corresponding to a tunnel."

Neither do the cited references teach the elements of new independent claim 32 which includes many features similar to independent claims 1, 15 and 29.

Applicants respectfully submit that Guruprasad does not cure the deficiencies of Alexander. Applicants respectfully request that the rejections against independent claims 1, 15, 29, and 32 and the claims that depend from them be withdrawn.

Applicants note that although not cited against the independent claims, the other references cited by the Examiner have been reviewed as well for teachings relevant to the independent claims, and none of the other cited references teach the elements of the independent claims either.

CONCLUSION

Applicants believe all claims now pending in this application are in condition for allowance. Applicants therefore respectfully request that a timely Notice of Allowance be issued in this case. Should the Examiner believe a telephone conference would expedite prosecution of this application, the Examiner is encouraged to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

Weaver Austin Villeneuve & Sampson LLP

/Jeffrey K. Weaver/

Jeffrey K. Weaver
Reg. No. 31,314

P.O. Box 70250
Oakland, CA 94612-0250